Form C-104
Rev. 10/07

VALUE ENGINEERING CHANGE PROPOSAL
MISSOURI DEPARTMENT OF TRANSPORTATION

Contract ID 090626-505 Date July 14, 2009

County Boone Route 740 Job No. J5P2170

Contractor APAC-Missouri, Inc. Original Bid Cost 1,682,289.98

Designed By By Jason Stastny

VECP # 09-75 Phone 573-449-0886

VECP ☒ or VECP/PDU ☐

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages

Plans call for ¾" UBAWS (Nova Chip) on shoulders in various locations on project. The shoulders on this project receive heavy parking traffic during major events at the University of Missouri Stadium. APAC can deliver an equal and or better shoulder with 1" of BP-2, for a $ 56,814.81 savings to the project. The majority of the shoulders on this project are designated "bike lanes",Nova Chip only provides a wearing surface to the existing grade, BP-2 can fill the low areas resulting in a smoother more uniform finish for the bikers.

2. Estimate of reduction in construction costs. $ 56,814.81

3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.

A few locations of the existing shoulder are broken and or rutted needing more structure than the UBAWS could provide. The BP-2 would provide a less expensive, more suitable solution to these areas, resulting in less future maintenance expense.

4. Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.

_____
(date)

5. Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.

ASAP (date) Purchase orders for materials for the proposed changes (effect)

6. Dates of any previous or concurrent submission of the same proposal.

_____

(date and/or dates)

Additional Comments:
Plan . . . . . UBAWS 46,001 square yards @ ¾" = 1,897 tns. @ $4.81/sq.yd.=$ 221,264.81
Proposed. . . BP-2 46,001 square yards @ 1" = 2,530 tns. @ $65.00/ton. =$ 164,450.00
Proposed Job Savings = $ 56,814.81
50% Savings to Contractor = $ 28,407.40

*** Portion Below This Line To Be Filled Out by MoDOT ****

Comments: Recommend rejecting Proposal. Attached are note threads from discussions with District PM & C & M Division. All for that Proposal was of lesser quality & lessened drainage at Pavement when U.B.A.W.S being Placed.

Charlie Scott — 7-21-09
Submitted By Resident Engineer — Date

Comments: Our concerns and alternative approaches were verbally discussed w/ APAC on July 28 at the Columbia P.O. They were asked to consider these alternatives in lieu of original concept proposal. They've since declined and proceeded to build the shoulders according to plan w/ UBAWS.

☐ **Approval Recommended**
☒ **Rejection Recommended**

Roger Schwartze — 8/31/09
District Engineer — Date

Comments: Agree with district and R.E. BP2 Mix is a lesser quality than UBAWS.

☐ **Approval**
☑ **Rejection**

David D. Boeckmann — 9-4-09
State Construction and Materials Engineer — Date

Distribution: Resident Engineer, Project Manager, District Operations Engineer, State Construction and Materials Engineer
*Value Engineering Administrator - *MoDOT, P.O. Box 270, Jefferson City, MO 65102

Trent A Brooks /D5/MODOT
07/17/2009 09:33 AM

To Charles A Sullivan/D5/MODOT@MODOT
cc Thomas J Anna/SC/MODOT@MODOT, Brian A Williams/SC/MODOT@MODOT, John A Dietzel/D5/MODOT@MODOT, Joseph W
bcc
Subject Re: Fw: Scanned image from Sharp 455 MoDOT Columbia

Chuck, from what I remember, I ask Roger about either using something other than UBAWS or doing nothing to the shoulders when we were designing the project. He was not open to either option, wanting the surface to all be the same.

I talked to Eric about the proposed VE yesterday. Roger's previous desire along with the issues Tom raised below, specifically the ponding of water at the joint, we believe the shoulders should not be changed from the UBAWS.

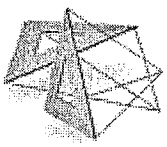
I did not try on learn about the District 1 job, but can if you still feel it is necessary.

Let me know if there are any additional questions.

Thanks,

Trent Brooks, P.E.
Transportation Project Manager
Work - 573-526-8099
Email - trent.brooks@modot.mo.gov

Thomas J Anna/SC/MODOT



Thomas J Anna /SC/MODOT
07/15/2009 04:12 PM

To Charles A Sullivan/D5/MODOT@MODOT
cc Brian A Williams/SC/MODOT@MODOT, John A Dietzel/D5/MODOT@MODOT, Laurie E Wyrick/D5/MODOT@MODOT, Louis Nunley/D5/MODOT@MODOT, Patricia L Lemongelli/D5/MODOT@MODOT, Trent A Brooks/D5/MODOT@MODOT, Joseph W Schroer/SC/MODOT@MODOT
Subject Re: Fw: Scanned image from Sharp 455 MoDOT Columbia

Chuck,

I've read over APAC's proposal and discussed it with Joe Schroer and Brian Williams and offer the following:

1) I do not agree that a BP-2 is equal to or better than UBAWS with regard to stability. UBAWS is rock-on-rock contact, similar to a SMA, while the BP mix has aggregate floating in liquid asphalt. The BP mix will provide a smoother ride due to a more uniform surface for the bicyclists but, I don't think the UBAWS will cause complaints from the bicyclists. For parking purposes, the UBAWS will be tougher, more rut resistant than the BP mix...although, if rutting is currently occurring and the shoulder is in need of additional structure to support traffic, neither the BP nor the UBAWS will provide adequate structure at 3/4" thick.

2) BP-2 is not the correct mix for this situation. The UBAWS is 3/4" thick. The minimum thickness of the BP-2 is 1" (if applied as the surface mix, which it will in this case). If a BP mix is going to be used, we should require a BP-3 which can be layed as thin as 3/4" to match the UBAWS thickness.

3) The UBAWS is designed to have water drain into and through the mix. At the point when is reaches the dense graded BP mix, the water will have to pond in the UBAWS near the UBAWS/BP interface until the water level reaches the level of the BP and then it will flow over the BP mix. So, there is a likelihood of some water ponding on the UBAWS near the UBAWS/BP interface. For bicycles, this is probably not much of a problem, especially since they most likely won't be riding in the rain. Also, with the ponding of water up against the BP, it may accelerate stripping of the BP at the construction joint.

Recommendations (listed in order of best (1) to worst (3) alternatives):
(1) If possible, leave the current design as it stands. The UBAWS is the better of the two mixes, UBAWS versus BP. And I'm not sure it will be worth saving only $28,000.

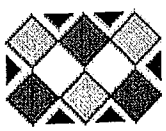
(2) From what I understand, the bike path will be up against the pavement edge and out approximately 5 feet. From this, I would pave the UBAWS out to the outside edge of the bike path (so the bike will ride on the UBAWS) and the remaining 5 feet or so of shoulder be chipped sealed. If a 3/8" chip is a concern for bicyclists due to the size of the rock, we could use a 1/4" chip. This design will leave a small drop-off from the UBAWS to the chip seal but is should be negligible especially if they would pinch down the edge of the UBAWS. The chip seal next to the UBAWS will allow the UBAWS to drain easier without ponding water on the surface or accelerating stripping.

(3) Same as recommendation #2 except place 3/4" BP-3 with PG64-22 up against the UBAWS. I do not recommend placement of BP-2 since the minimum lift for a BP-2 surface course is 1" which is 1/4" higher than the UBAWS.

I hope I have provided viable solutions to address the VE proposal. If you have additional questions, please let me know.

Thank you,
Thomas J. Anna
1617 Missouri Blvd.
P.O. Box 270
Jefferson City, MO 65102
Office: 573-522-1948
Fax: 573-751-8682

Charles A Sullivan/D5/MODOT



Charles A Sullivan/D5/MODOT
07/15/2009 02:18 PM

To Patricia L Lemongelli/D5/MODOT@MODOT, Thomas J Anna/SC/MODOT@MODOT, Trent A Brooks/D5/MODOT@MODOT, Brian A Williams/SC/MODOT@MODOT, John A Dietzel/D5/MODOT@MODOT, Louis Nunley/D5/MODOT@MODOT, Laurie E Wyrick/D5/MODOT@MODOT

cc

Subject Fw: Scanned image from Sharp 455 MoDOT Columbia

People,
Attached is a VE proposal for the Rte 740 "NOVA Chip" Project. Please review and give me your thoughts by next Monday, July 20, 2009.
Thank you.

http://www.adobe.com/

AR-M455N_20090715_112534.pdf

Trent and Tom, I believe we discussed this option during the design field check.
Apparently APAC has submitted this same proposal in district 1. Can we find out if it has merit?
Thanks

Charles Sullivan, Resident Engineer
4201 Paris Road
Columbia, MO 65202
573-884-4770 (W)
573-884-4769 (F)
573-999-7350 (C)
charles.sullivan@modot.mo.gov

VALUE ENGINEERING CHECK SHEET

TYPE OF WORK

(Check one that applies)

- ☐ Bridge/Structure/Footings
- ☐ Drainage Structures (RCP, RCB, CMP's, ect.)
- ☐ TCP/MOT
- X Paving (PCCP, ect.)
- ☐ Grading/MSE Walls
- ☐ Signal/Lighting/ITS
- ☐ Misc. _____

SUMMARY OF PROPOSAL

(If needed, condense summary to a couple of lines)

The contractor has proposed to use 1" of BP-2 mix in lieu of ¾" UBAWS for shoulders. This is not considered an equal or better product and also would create possible drainage issues because of the difference in depths. This proposal is rejected.

SCANNING OF DOCUMENT

If the proposal is large, please mark or make note, which pages need to be scanned into the database. If there are special instructions, make note of them here.

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